

Claims

What Is Claimed Is:

- 5 1. A method for providing user authentication comprising:
- (a) sending, by a first unit, user identification data to an authentication unit;
- (b) using the user identification data to determine which intermediate destination unit will receive an authentication code to be used to
- 10 authenticate the user;
- (c) sending the authentication code to the determined intermediate destination unit based on the user identification data via a first secondary channel;
- (d) re-transmitting , by the intermediate destination unit, the
- 15 authentication code to the first unit via a second secondary channel in a way that is transparent to the user;
- (e) in response to receiving the re-transmitted authentication code from the intermediate destination unit, returning the authentication code to the authentication unit; and
- 20 (f) authenticating the user when the returned authentication code is determined to be suitable.
2. The method of claim 1 including the step of providing selection of a third unit transparent authentication code submission scheme and selecting the third unit
- 25 transparent authentication code scheme in response to receiving selection data.
3. The method of claim 1 including the step of maintaining per user destination unit data including at least one destination unit identifier per user and wherein the step of using the user identification data to determine which destination unit will
- 30 receive the authentication code includes sending the authentication code to the

determined intermediate destination unit based on the stored per user destination unit identifier.

4. The method of claim 1 wherein the second secondary channel is short range
5 channel and including the step of notifying, by the second unit, the first unit of a short range secondary channel used to receive the retransmitted authentication code from the third unit.
5. The method of claim 1 including the steps of:
10 prior to returning the authentication code to the authentication unit, digitally signing, by the first unit, the returned authentication code to produce a digitally signed authentication code that was received from the determined destination unit; and
15 verifying the digitally signed authentication code as part of step (f).

6. A method for providing user authentication comprising:

receiving by an intermediate unit, from an authentication unit via a first secondary channel, an authentication code for a first unit; and
re-transmitting , by the intermediate destination unit, the authentication code to the first unit via a second secondary channel in a way that is transparent to a user of the first unit.

7. The method of claim 6 including the step of transforming the authentication code prior to the step of re-transmitting via the second secondary channel.

8. A method for providing user authentication comprising:

sending, by a first unit, user identification data to an authentication unit;

5 receiving a re-transmitted authentication code that was previously sent by an authentication unit to an intermediate destination unit; and

in response to receiving the re-transmitted authentication code from the intermediate destination unit, returning the authentication code to the authentication unit.

10 9. The method of claim 8 including the step of controlling a short range receiver to receive the re-transmitted authentication code in response to receiving notification from the authentication unit and wherein returning the authentication code to the authentication unit includes returning the authentication code in a way that is transparent to the user of the first unit.

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10. A storage medium comprising:

memory containing executable instructions that when executed by one or more processors, causes the one or more processors to:

send, by a first unit, user identification data to an authentication unit;

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use the user identification data to determine which intermediate destination unit will receive an authentication code to be used to authenticate the user;

send the authentication code to the determined intermediate destination unit based on the user identification data via a first secondary channel;

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re-transmit, by the intermediate destination unit, the authentication code to the first unit via a second secondary channel in a way that is transparent to the user;

in response to receiving the re-transmitted authentication code from the intermediate destination unit, return the authentication code to the authentication unit; and

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authenticate the user when the returned authentication code is determined to be suitable.

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10. The storage medium of claim 10 including memory containing instructions that when executed by one or more processors, causes the one or more processors to provide selection of a third unit transparent authentication code submission scheme and selecting the third unit transparent authentication code scheme in response to receiving selection data.

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12. The storage medium of claim 10 wherein the second secondary channel is short range channel and including memory containing instructions that when executed by one or more processors, causes the one or more processors to notify, by the second unit, the first unit of a short range secondary channel used to receive the retransmitted

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authentication code from the third unit.

13. A system for providing user authentication comprising:
- a first unit;
 - a second unit operatively coupleable to the first unit via a primary wireless channel and operatively coupleable to an authenticator; and
 - 5 a third unit, operatively coupleable to the second unit via a wireless back channel and operatively coupleable to the first unit via a secondary short range channel,
 - the first unit operative to send primary authentication information via the primary channel during a session to the second unit;
 - 10 the authenticator operative to use the primary authentication information to determine which destination unit, other than the first unit, will receive an authentication code as secondary authentication information via the wireless back channel and wherein the destination unit is the third unit;
 - the second unit operative to the send the authentication code on the
 - 15 wireless back channel to the destination unit based on the primary authentication information sent via the primary channel during the same session;
 - the destination unit operative to re-transmit the authentication code to the first unit via a second secondary channel in a way that is transparent to a user of the first unit;
 - 20 the first unit operative to return the authentication code on the wireless primary channel to the second unit during the same session; and
 - the authenticator operative to authenticate the user when the returned authentication code received from the wireless primary channel is determined to be suitable.
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14. The system of claim 13 wherein the authenticator maintains per user destination unit data including at least one destination unit identifier per user and sends the authentication code to the second unit for transmission to the destination unit based on the stored per user destination unit identifier.

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15. The system of claim 13 wherein the first unit includes a cryptographic engine and prior to the first unit returning the authentication code for the authenticator, digital signs the returned authentication code to produce a digitally signed authentication code that was received from the third unit; and wherein the authenticator verifies the digitally signed authentication code as part of authenticating the user.
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11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

16. An apparatus for providing user authentication comprising:

means for receiving from an authentication unit via a first secondary channel, an authentication code for a first unit; and

means for re-transmitting the authentication code to the first unit via a second secondary channel in a way that is transparent to a user of the first unit.

17. The apparatus of claim 16 including a transformation circuit that transforms the authentication code prior to re-transmitting via the second secondary channel.